



**EUROPEAN PATENT APPLICATION**

Application number: **94105843.0**

Int. Cl.<sup>6</sup>: **G06F 11/20, G11C 16/06,  
G06F 3/06, G06F 12/08**

Date of filing: **30.03.90**

Priority: **13.04.89 US 337566**

Date of publication of application:  
**05.10.94 Bulletin 94/40**

Publication number of the earlier application in  
accordance with Art.76 EPC: **0 392 895**

Designated Contracting States:  
**DE FR GB**

Date of deferred publication of the search report:  
**08.03.95 Bulletin 95/10**

Applicant: **SUNDISK CORPORATION**  
**4401 Great America Parkway,**  
**Suite 150**  
**Santa Clara,**  
**California 95054 (US)**

Inventor: **Harari, Eliyahou**  
**104 Auzerais Court**  
**Los Gatos, California 95054 (US)**  
Inventor: **Norman, Robert D.**  
**6656 Pebblewood Court**  
**San Jose, California 95120 (US)**  
Inventor: **Mehrotra, Sanjay**  
**735 Berkshire Place**  
**Milpitas, California 95035 (US)**

Representative: **Kopacz, William James**  
**83, Avenue Foch**  
**F-75116 Paris (FR)**

**EEprom card with defective cell substitution.**

A system of Flash EEprom memory chips with controlling circuits serves as non-volatile memory such as that provided by magnetic disk drives. Improvements include the ability to remap and replace defective cells with substitute cells. The remapping is performed automatically as soon as a defective cell is detected. When the number of detects in a Flash sector becomes large, the whole sector is remapped. In one embodiment, the Flash EEprom memory is implemented on a memory card adapted to plug into a computer system. In another embodiment, the system of Flash EEPROM memory chips with controlling circuits is implemented on a memory card adapted to plug into a computer system.



European Patent  
Office

## EUROPEAN SEARCH REPORT

Application Number  
EP 94 10 5843

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.5)
A	AU-A-557 723 (BLUE CIRCLE SOUTHERN CEMENT LIMITED) * the whole document * ---	1, 4, 5	G06F11/20 G11C16/06 G06F3/06 G06F12/08
A	COMPUTER DESIGN, vol.28, no.5, March 1989, LITTLETON, MASSACHUSETTS US pages 30 - 32, XP000097567 R. WILSON '1-Mbit flash memories seek their role in system design' * the whole document * ---	1	
A	EP-A-0 086 886 (INTERNATIONAL BUSINESS MACHINES CORPORATION) * abstract * ---	2	
A	GB-A-2 136 992 (GEORG V. COZA) * the whole document * ---	1	
A	EP-A-0 220 718 (TOPPAN PRINTING CO., LTD.) * the whole document * ---	1	
P, A	US-A-4 896 262 (WAYAMA ET AL.) * the whole document * ---	1, 2	
A	& PATENT ABSTRACTS OF JAPAN vol. 10, no. 30 (P-426) 5 February 1986 & JP-A-60 178 564 (MEIDENSHA KK) * abstract * ---	1	
L	US-A-4 945 535 (HOSOTANI ET AL.) * the whole document * ---	1	
A	& PATENT ABSTRACTS OF JAPAN vol. 13, no. 261 (P-885) & JP-A-01 054 543 (MITSUBISHI ELECTRIC CORP.) 2 March 1989 * abstract * -----	1	
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 30 December 1994	Examiner Absalom, R
<b>CATEGORY OF CITED DOCUMENTS</b> X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document			